

Amendment and Response

Applicant: Jerome D. Brown et al.
Serial No.: 10/681,851
Filed: October 8, 2003
Docket No.: 10386US01

Title: TAPE REEL ASSEMBLY WITH STIFF WINDING SURFACE FOR A TAPE DRIVE SYSTEM

REMARKS

The following remarks are made in response to the Final Office Action mailed May 16, 2006. In the Final Office Action, claims 1, 9-11, 14, 35, and 37-40 were rejected under 35 U.S.C. § 112, second paragraph. In addition, claims 1, 9-10, 14, 26-29, 31, 35, 37-39, 41, 43, and 44 were rejected under 35 U.S.C. § 102(b) as anticipated by Weyrich et al., U.S. Patent No. 3,485,456 ("Weyrich"), and claims 1, 9-10, 14, 26-29, 31, 35, and 38 were rejected under 35 U.S.C. § 103(a) as unpatentable over Weyrich.

With this Response, claim 9 has been cancelled, and claims 1, 10-11, 35, 37, and 41 have been amended. Claims 1, 10-11, 14, 26-31, 35, and 37-44 remain pending in the application and are presented for consideration and allowance.

Claim 36

The Final Office Action maintains the position that claim 36 will be withdrawn as "[T]here is no disclosure as to what applied stress corresponds to an effective radial modulus of 0.3 million pounds-per-square inch." Applicants respectfully request that the Examiner not withdraw claim 36 from consideration as it is directed to the elected species.

The specification at page 9, line 14 through page 10, line 17 details the relationship between applied stress, a resulting strain, and the associated material modulus that represents the material's deformation (i.e., response) to the applied stress. For any applied stress, a material will respond with some measurable deformation. The ratio, i.e., dividing the applied stress by the measured deformation, defines the modulus of the material or thing being tested. With regard to claim 36, an effective radial modulus of the tape winding surface is in all cases greater than 0.3 million pounds-per-square-inch.

One of ordinary skill in the tape reel assembly art will understand that a relationship exists between the winding of storage tape onto a hub and the resulting deformation of that hub. The specification at pages 9 and 10 describes that a stress/force is applied radially to a tape winding surface due to successive wraps of storage tape (the number of windings is not necessarily relevant because one of skill in the art will understand that each winding applies

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some amount of stress/force to the tape winding surface). This applied stress will result in a described deformation (a strain, see the specification at page 9, lines 25-29 for a definition) to the tape winding surface. The specification describes at page 10, lines 15-17 that the effective radial modulus (the stress applied by wound storage tape divided by the strain) characterizes the relative resistance to radial deformation of the tape winding surface due to the successive wraps of storage tape.

In pertinent part, claim 36 requires: "wherein winding of the storage tape onto the hub applies a stress that deflects the tape winding surface, and further wherein the deflection of the tape winding surface resulting from the applied stress corresponds to an effective radial modulus of the tape winding surface of greater than 0.3 million pounds-per-square-inch."

For all of the above reasons, it is respectfully requested that claim 36 not be withdrawn from consideration as it is directed to the elected species.

35 U.S.C. § 112 Rejections

Claims 1, 9-11, 14, 35, and 37-40 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite. The previous rejection to these claims under 35 U.S.C. § 112, first paragraph, has been withdrawn, which is noted with appreciation.

Under 35 U.S.C. §112, second paragraph, the claims must particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. In order to meet this standard, a claim must satisfy two requirements: (1) it must set forth what the Applicant regards as his invention and (2) the claims must particularly point out and distinctly define the metes and bounds of the subject matter claimed. *See, e.g., Solomon v. Kimberley-Clarke Corp.*, 55 USPQ2d 1279, 1282 (Fed. Cir. 2000); MPEP §2171.

In evaluating the first requirement, the MPEP advises that "a rejection based on the failure to satisfy this requirement is appropriate only where applicant has stated, somewhere other than in the application as filed, that the invention is something different from than what is defined by the claims." MPEP §2172(I) (emphasis added). Otherwise, "the invention set forth in the claims must be presumed, in the absence of evidence to the contrary, to be that which applicants regard as their invention." MPEP §2172(I) (citing *In re Moore*, 439 F.2d 1232, 169

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USPQ 236 (CCPA 1971). Since the Examiner has not identified any prior applicant statements that characterize the invention as being different than what is defined in the claims, it is believed that the Examiner and the applicants are in agreement that the first requirement of 35 U.S.C. 112, second paragraph, is met.

In terms of the second requirement, an “[a]pplicant may use functional language ... or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is sought.” MPEP §2173.01 (emphasis added) (citing *In re Swinehart*, 439 F.2d 210, 160 USPQ 226 (CCPA 1971)). The clarity of the claim language must be evaluated according to the understanding of one having ordinary skill in the art in view of the application disclosure and the prior art. *In re Moore*, 439 F.2d 232, 235, 169 USPQ 236, 238 (CCPA 1971) (Emphasis added). In terms of functional language, it has been held that functional language is perfectly acceptable if it sets forth definite boundaries on the patent protection sought. *In re Barr*, 170 USPQ 33 (CCPA 1971).

In addition, “Examiners are encouraged to suggest claim language to applicants to improve the clarity or precision of the language used, but should not reject claims or insist on their own preference if other modes of expression selected by applicants satisfy the statutory requirement.” MPEP § 2173.02 (Emphasis added).

With this Response, independent claims 1, 35, and 37 have been amended. In particular, independent claim 1 has been amended to remove the recitation of “an effective radial modulus.” Independent claim 35 has been amended to provide the effective radial modulus is defined as a ratio of radial stress applied to the tape winding surface by wound storage tape divided by a resulting radial deformation at the tape winding surface due to the applied stress. Independent claim 37 has been amended to provide that the metal backbone configures the tape winding surface to have an effective radial modulus of greater than 0.3 Mpsi, with the modulus defined as in claim 35.

In view of the specification and the cited art, it is respectfully submitted that the language of independent claims 1, 35, and 37 is clear to one of ordinary skill in the tape reel assembly art. In this regard, it is respectfully submitted that one of ordinary skill in the tape reel assembly art would understand that winding storage tape onto the tape reel assembly would give rise to a

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radial stress applied to the tape winding surface, and that this stress is proportional to the resulting radial deformation at the tape winding surface. One of skill in the art would recognize that this proportional relationship can be characterized as an effective radial modulus.

In response to the Examiner's questions on page 2 of the Office Action mailed May 16, 2006 it is noted that claims 35 and 37 provide that the tape winding surface is configured by the claimed structure of the hub to have an effective radial modulus of greater than 0.3 million pounds-per-square-inch. In this regard, the structure that is being defined is the tape winding surface itself, and the property of the tape winding surface that is claimed is the modulus, which is a term understood by those skilled in the tape reel assembly art. In addition, the tape winding surface is configured to have the recited effective radial modulus such that when there is no applied stress, there is no resulting strain. Thus, the tape winding surface is configured to have an effective radial modulus of greater than 0.3 million pounds-per-square-inch, where the effective radial modulus is defined as a ratio of radial stress applied to the tape winding surface by wound storage tape divided by a resulting radial deformation at the tape winding surface due to the applied radial stress.

With the above in mind, the term "modulus" is a term that is understood in the art, and independent claims 1, 35, and 37 make clear what the boundaries of the claimed subject matter are. For these reasons, it is respectfully requested that the rejection to claims 1, 9-11, 14, 35, and 37-40 under 35 U.S.C. § 112, second paragraph be withdrawn.

35 U.S.C. § 102 Rejections

Claims 1, 9-10, 14, 26-29, 31, 35, 37, 39, 41, 43, and 44 were rejected under 35 U.S.C. § 102(b) as anticipated by, or in the alternative, as obvious under 35 U.S.C. § 103(a) over Weyrich.

Weyrich teaches at column 2, line 61 through column 3, line 10 a reel 10 including a hub portion 12 having parallel flanges 14 and 16 rigidly mounted to opposite sides of the hub 12. Weyrich teaches at column 3, lines 11-20 that the hub 12 includes an inner rim 20 and an outer rim 22. The outer rim 22 has an outer surface for receiving computer tape. In addition, Weyrich teaches at column 3, lines 21-27 and lines 67-70 that the hub 12 includes "an interior metal

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insert 26" that is disposed horizontally between the inner rim 20 and the outer rim 22. *See FIG. 3.* In this regard, the metal insert 26 is held in place by screws that project through apertures 38, welds 42, and openings 44 formed in the hub. Consequently, the hub 12 taught by Weyrich cannot be continuously solid between the inner rim 20 and the outer rim 22 due to the presence of the apertures 38, the welds 42, and the openings 44.

With this Response, independent claim 1 has been amended to provide a tape reel assembly for use in a tape drive system for winding and unwinding a storage tape, the tape reel assembly including a hub including a core defining an inner surface opposite a tape winding surface, at least a portion of the hub made of plastic, where the hub includes a metal insert that forms at least a portion of the inner surface.

It is respectfully submitted that Weyrich does not teach or suggest a hub having a core defining an inner surface that is positioned opposite a tape winding surface, where the hub includes a metal insert that forms at least a portion of the inner surface. Specifically, note that the metal insert 26 taught in Weyrich (best illustrated in FIG. 3) is completely contained within the inner rim 20 and the outer rim 22.

In this regard, independent claim 26 has not been amended and is believed to define over Weyrich. In particular, independent claim 26 provides a tape reel assembly for use in a tape drive system for winding and unwinding a storage tape, the tape reel assembly including a hub including a core and a backbone that combine to define an inner surface opposite a tape winding surface, where at least a portion of the hub is made of plastic, and at least a portion of the inner surface is metal. Weyrich does not teach or suggest at least a portion of an inner surface of a hub that is made of metal. For at least this reason, it is respectfully submitted that independent claim 26 recites patentable subject matter over Weyrich.

Independent claim 35 has been amended to provide a tape reel assembly for use in a tape drive system for winding and unwinding storage tape, the tape reel assembly including a hub including a core defining an inner surface and a tape winding surface, the core continuously solid between the inner surface and the tape winding surface and at least a portion of the hub being made of plastic.

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Support for the language of amended independent claim 35 is located throughout the specification, and in particular, in the view of FIG. 5. In this regard, it is noted that drawings may provide the basis for subsequent amendments to the Specification without producing prohibitory new matter. *In re Wolfensperger*, 302 F.2d 950, 133 USPQ 537 (C.C.P.A. 1962); M.P.E.P. §2163.02. The Federal Circuit has held: "The practical, legitimate inquiry in each case of this kind is what the drawing in fact discloses to one of skill in the art. Whatever it does disclose may be added to the Specification in words without violation of the statute and rule which prohibit 'new matter,' 35 U.S.C. §132, rule 118, for the simple reason that what is originally disclosed cannot be 'new matter' within the meaning of this law." (emphasis added) 133 USPQ at 542. In light of this understanding, it is respectfully submitted that claim 35 is supported in the specification at least through an implicit or inherent disclosure. M.P.E.P. §2163 I.B.

Weyrich fails to teach or suggest a hub including a core defining an inner surface and a tape winding surface, where the core is continuously solid between the inner surface and the tape winding surface. In fact, Weyrich teaches at column 3, lines 21-27 and 67-70 that the hub 12 is held in place by screws 46 that project through apertures, welds, and openings 44 formed in the hub 12. By the express teachings of Weyrich, amended independent claim 35 is patentably distinct.

Independent claim 37 has been amended to provide a tape reel assembly for use in a tape drive system for winding and unwinding storage tape, the tape reel assembly including a hub defining an inner surface opposite a tape winding surface, where the inner surface includes a metal backbone and at least a portion of the hub is made of plastic, and where the metal backbone configures the tape winding surface to have an effective radial modulus of greater than 0.3 Mpsi. It is respectfully submitted that Weyrich fails to teach or suggest a hub defining an inner surface that is opposite a tape winding surface, where the inner surface includes a metal backbone.

Independent claim 41 has been amended to provide a tape reel assembly for use in a tape drive system for winding and unwinding storage tape, the tape reel assembly including a hub including a metal backbone defining an inner surface, and a plastic core coupled to the backbone

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and defining a tape winding surface, where the tape winding surface is disposed opposite of the inner surface. It is respectfully submitted that the cited references fail to teach or suggest a tape winding surface that is disposed opposite of an inner surface, where a metal backbone defines the inner surface and a plastic core is coupled to the backbone to define a tape winding surface.

Based upon the above, the independent claims cannot be anticipated by Weyrich, such that it is respectfully requested that the rejections to claims 1, 9-10, 14, 26-29, 31, 35, 37, 39, 41, 43, and 44 under 35 U.S.C. § 102(b) over Weyrich be withdrawn.

35 U.S.C. § 103 Rejections

Claims 1, 9-10, 14, 26-29, 31, 35, and 38 were rejected under 35 U.S.C. § 103(a) as unpatentable over admitted prior art in view of Weyrich. The Examiner takes the position that it would have been obvious to one of ordinary skill in the art to provide the plastic hub of the admitted art with the metal insert taught by Weyrich. Applicants respectfully disagree.

To establish a *prima facie* case of obviousness, all three of the following basic criteria must be met. First, there must be some suggestion or motivation to modify or combine the reference teachings. Second, there must exist a reasonable expectation of success. Third, the references must teach or suggest all of the claim limitations. MPEP § 2143.

Weyrich teaches at column 2, lines 16-20 that it is an important object of his invention to positively secure the flanges of the reel to the hub. Weyrich teaches at column 3, lines 21-31 that the interior metal insert 26 reinforces the hub 12, but in the context of the entire Weyrich disclosure, it is believed that Weyrich teaches reinforcement of the flanges 14, 16 onto the hub 12. In fact, Weyrich characterizes his invention in the Summary or the Invention as employing drive screws to positively hold the flanges 14, 16 and the hub 12 together. Based upon this, it is believed that no suggestion or motivation is provided by Weyrich to modify the hub 12 to achieve the stiff tape winding surface as claimed. Absent a motivation to combine the references, a *prima facie* case of obviousness cannot be established.

However, even if the plastic prior art hubs were modified to include the interior metal insert 26 taught by Weyrich, the resulting device would not teach or suggest the claimed hub of independent claim 1, 26, 35, and 37. In particular, the purported combination of the admitted art

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with Weyrich would not teach or suggest a hub including a metal insert that forms at least a portion of the inner surface as required by amended independent claim 1; a hub that includes a metal insert that forms at least a portion of an inner surface of the hub as required by independent claim 26; a continuously solid core that extends between the inner surface and the tape winding surface as required by amended independent claim 35; or a hub defining an inner surface that is opposite a tape winding surface, where the inner surface includes a metal backbone as required by amended independent claim 37. Consequently, it is believed that a *prima facie* case of obviousness cannot be established relative to the pending claims based on the admitted prior art in view of Weyrich.

It is respectfully requested that the rejections to claims 1, 9-10, 14, 26-29, 31, 35, and 38 under 35 U.S.C. § 103(a) as unpatentable over the admitted prior art in view of Weyrich be withdrawn.

Allowable Subject Matter

The Examiner objected to claims 11, 30, 40 and 42 for being dependent upon a rejected base claim, but deemed these claims to be allowable if rewritten in independent form, which is noted with appreciation.

CONCLUSION

In view of the above, Applicants respectfully submit that pending claims 1, 10-11, 14, 26-31, 35, and 37-44 recite patentable subject matter, are in form for allowance, and are not taught or suggested by the cited references. Therefore, reconsideration and withdrawal of the rejections and allowance of the pending claims is respectfully requested.

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No fees are required under 37 C.F.R. 1.16(b)(c). However, if other fees are required, the Patent Office is hereby authorized to charge Deposit Account No. 09-0069.

The Examiner is invited to telephone the Applicants' representative at the below-listed number to facilitate prosecution of this application.

Respectfully submitted,

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